William H. Swain　　　　　　Serial Number 08/579,395
Art Unit: 2858

Claim 64, amended 15 Sept 04.

I claim a method for making a more accurate implement for at least one of measurement or control including the steps:

Construct a port for desired input signal I, which of necessity makes a port for undesired error producing interference N,

construct a port for said implement's output V_c,

acquire an Essential Characteristic type sensor having an output V responsive to said desired input signal I, and also

responsive to said undesired error producing interference N, and further

having an operating parameter of magnitude Q;

show that said Essential Characteristic type sensor has a useful said Essential Characteristic evidenced by

a signal to noise ratio SNR of said sensor observed to change a lot when the

said magnitude Q of said operating parameter is modulated over a practical range;

provide said implement equipped to:

support said sensor and at least one of:

largely cancel said interference N but retain a good signal I at said output V_c by

suitably modulating said magnitude Q,

operating on said sensor output V and

coupling the result to said output V_c of said implement in a manner such that

a reduced form of the said sensor output V in a lower said SNR state is

combined with said sensor output V in a higher said SNR state so that

said interference N largely cancels.

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Claim 66, amended, 15 Sept 04.

I claim a method for making a more accurate sensor with implement for at least one of measurement or control, made in steps:

obtain a said sensor having an output V responsive to a physical quantity input I, the gain g given by

$$g \equiv \frac{\delta V}{\delta I}\text{, and}$$

said output V is also responsive to an undesired error producing interference N, the sensitivity Ψ being

$$\Psi \equiv \frac{\delta V}{\delta N}\text{, and}$$

in addition, said sensor has an operating parameter of magnitude Q which modulates said Ψ, and to a lesser extent said gain g;

at least one of calibrate, or make by a proven process, or otherwise assure that said sensor has a strong Essential Characteristic evidenced by observing that said Sensitivity Ψ changes a lot more than said gain g when said magnitude Q is driven over a practical range of values;

provide an error correction form of said implement having an output V_c, and
also fitted to support said sensor, and
further equipped with state means

driving said magnitude Q,

dividing the said output V, and

combining the said output V, and

wherein said combining is coupled to said implement output V_c;

construct the said state means so that there is at least one state "A" wherein

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said means drive said magnitude Q to produce a large said sensitivity Ψ with good said gain g, and also said sensor output V is largely said divided and made available for said combining;

further construct said state means so that there is also at least one state "ß" wherein

said means drive said magnitude Q to produce a small said sensitivity Ψ with good said gain g, and

also said sensor output V is but slightly said divided and made available for said combining;

to get said error correction, at least one of:

set by a proven process, or adjust at least one of a said means dividing or said means combining so that

the said largely divided said large Ψ of said state "A" is about equal to and opposite from the said but slightly divided said small Ψ of said state "ß", and

thereby the said Ψ's approximately cancel in said combiner so that
the said error producing interference N is mostly removed from said output V_c; and

not withstanding there is remaining at said V_c a large part of said responsiveness to said physical quantity input I;

so that thereby said sensor with implement is a whole lot more accurate than comparable transducers for said physical quantity input I in the presence of said interference N.

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